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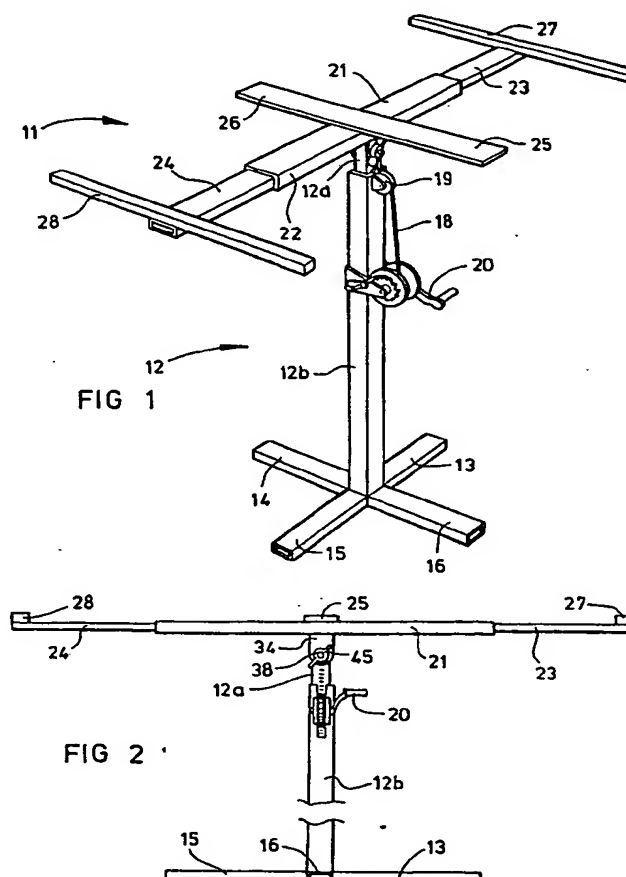
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(54) A panel support

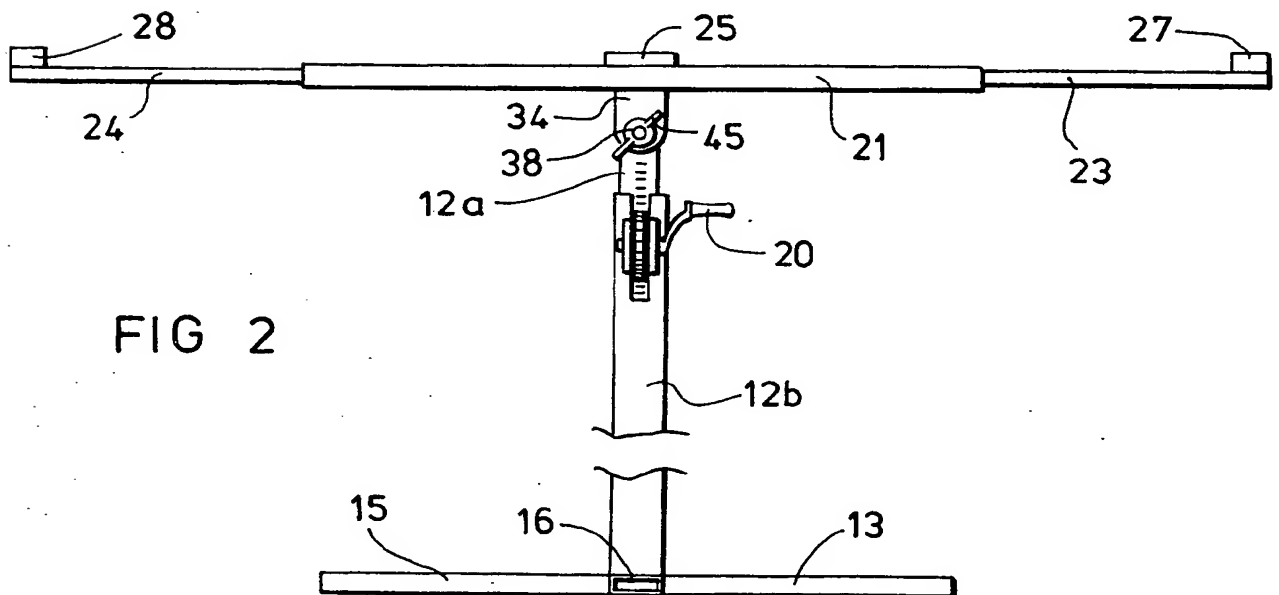
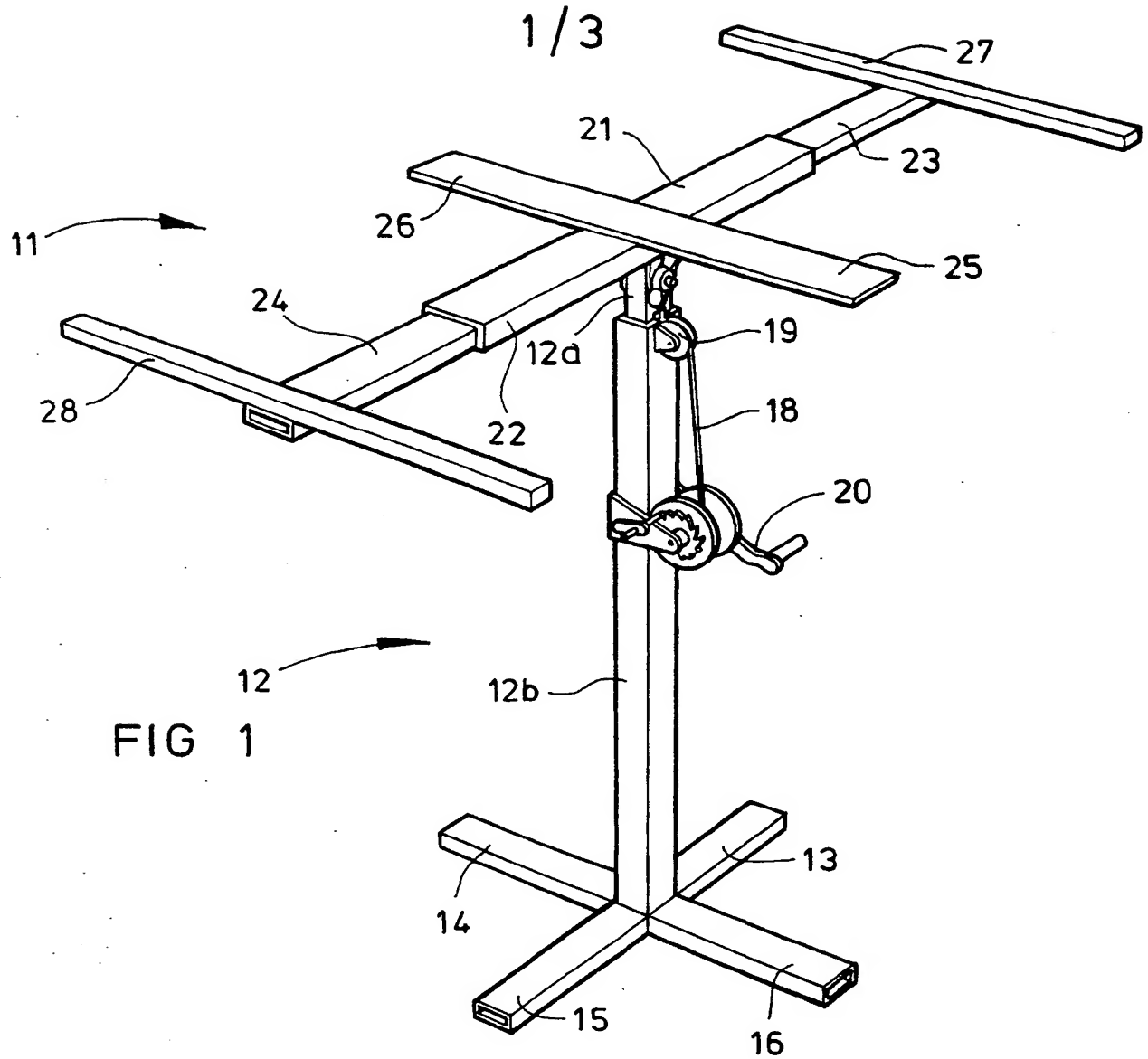
(57) A panel support comprises a frame (11) in the form of a telescopic main member (21, 22, 23, 24) having cross members (26, 27, 28) and fixed by a lockable, preferably universal, coupling (34, 38) to an upper member (12a) of a telescopic support column (12b). A winch (20) winding a cable (18) for a pulley (19), or a rack and pinion coupling is provided for effecting extension of the telescopic support column. Alternatively, coarse adjustment can be provided by a pin and hole arrangements (Figure 4, not shown), and fine adjustment by a threaded shaft and nut arrangement.



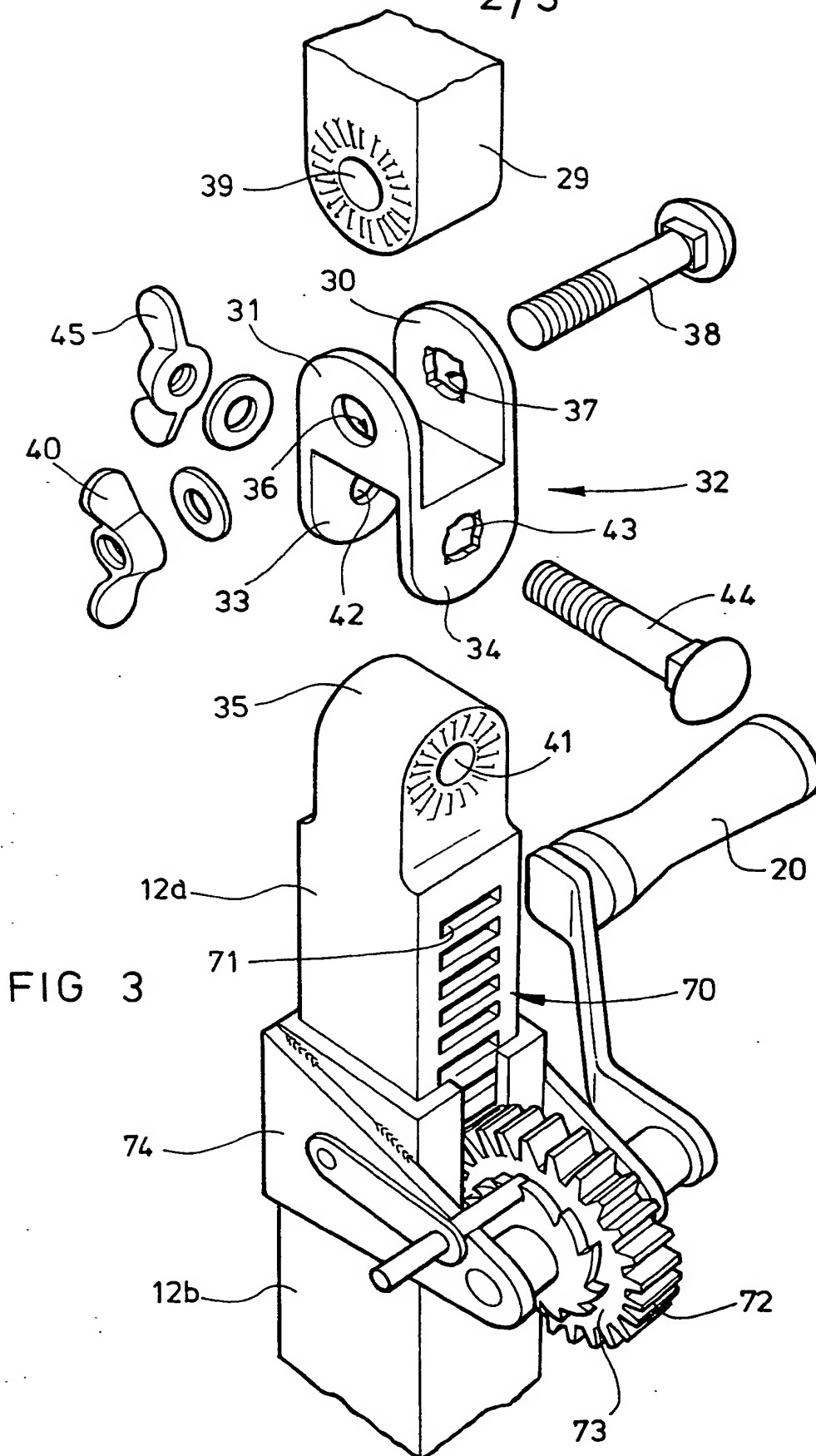
The drawing(s) originally filed was (were) informal and the print here reproduced is taken from a later filed formal copy. The claims were filed later than the filing date within the period prescribed by Rule 25(1) of the Patents Rules 1982.

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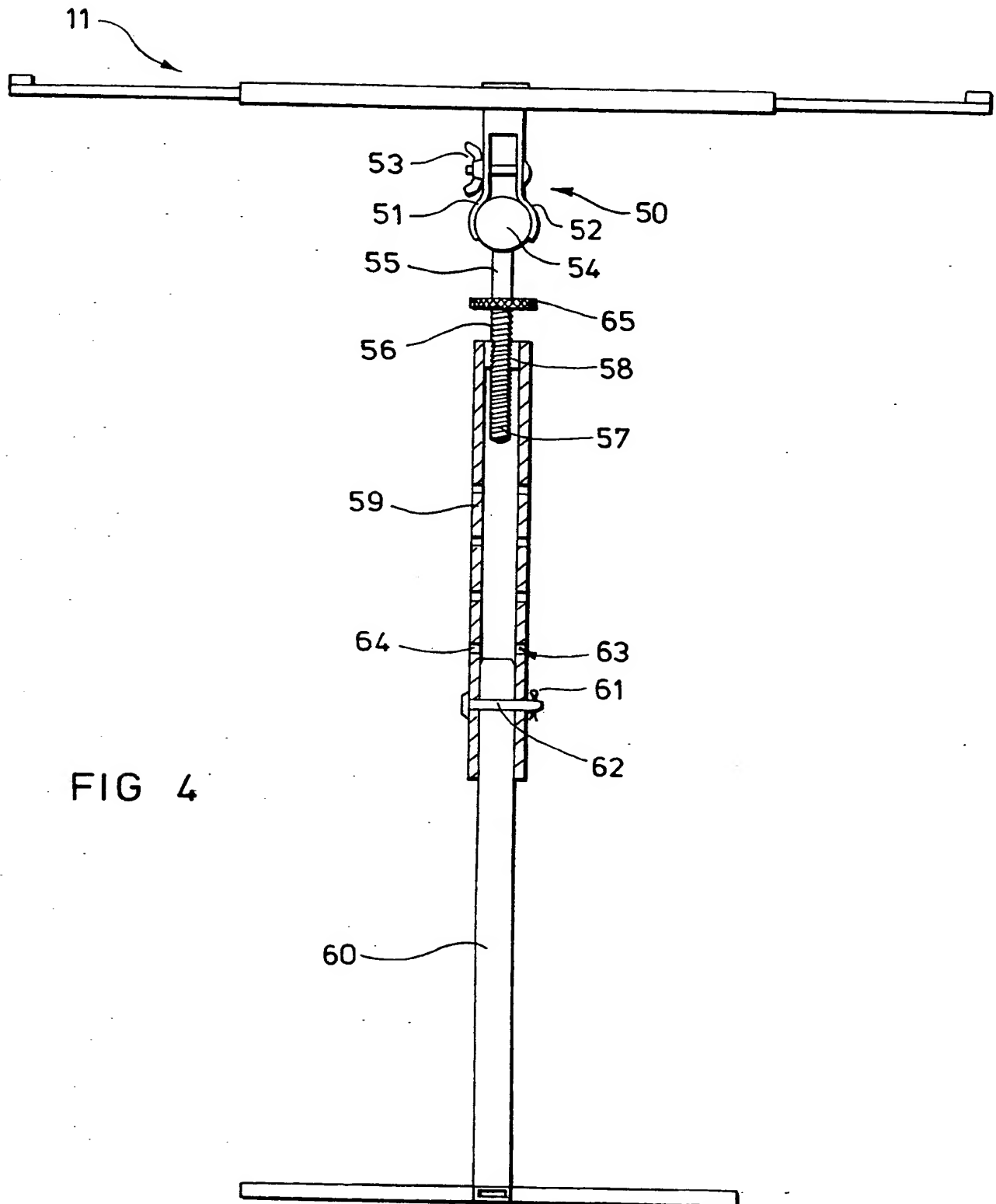
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SPECIFICATION

A panel support

5 The present invention relates to a panel support, and particularly, although not exclusively, to a panel support suitable for assisting builders and decorators in supporting panels for cladding purposes prior to affixing such panels to the support structure of a building or edifice.

10 Increasing use has been made in recent years of preliminarily formed panels of relatively rigid material which are used in a process known as "dry lining". A supporting framework of joists or rafters is provided at the appropriate centres and the panels affixed by suitable fixings at or adjacent their edges to form a substrate for receiving a settable skim coat such as gypsum plaster or other settable material. A similar dry lining process is frequently employed to make partition walls by attaching identical panels to vertical stud frames. In the latter case, relatively little difficulty is encountered in retaining the panels in position whilst they are being affixed since the retaining force acts perpendicularly with respect to the force exerted on the panel by gravity. When such a technique is used for the provision of ceiling panels, however, considerable difficulty is encountered since gravity acts in exactly the opposite direction from the retaining force so that an operator must either employ an assistant to help in holding the panel in position whilst the fixings are applied, or else a progressive attachment of the fixings utilising one hand, whilst the other holds the panel in position must be attempted. This latter is entirely unsatisfactory, particularly where accurate positioning of the panel is essential, whereas the employment of an additional assistant to aid in retaining the panels in position is uneconomic, particularly since the assistant is redundant once the first few fixings have been positioned sufficiently to retain the panel in position whilst the remaining fixings are applied.

45 The present invention seeks to provide a solution to this problem by means of a simple extensible temporary panel support which can act to hold a large area panel, for example, one of up to 32 square feet, in position temporarily whilst the fixings are applied. It is, of course imperative that such a support be light in weight to enable it to be positioned appropriately prior to assembling a panel thereto, and also so that, together with the weight of the panel, the overall weight of the assembly is not so great that a single operator has difficulty in manipulating it for accurate positioning of the panel prior to attachment by the appropriate fixing means.

60 According to the present invention, therefore, an extensible temporary panel support comprises a frame adapted for supporting a panel, such as a dry lining panel to be affixed to a ceiling, centrally supported by an extensible column having means for causing extension or contraction thereof to raise or lower the panel support frame, and means for retaining the column in any selected extension,

the panel support frame having means for releasably retaining the panel thereon and having two substantially open edges (as herein defined) to allow access to the panel supported on the frame for affixing it in position to a permanent support.

70 The term "open edges" as used herein will be understood to refer to a frame which does not have an entirely surrounding boarder and which therefore allows the edges of a panel of equal dimensions supported thereon to be available for access to an operator wishing to work on such edges, such as, for example, for affixing the edges of suitable fixing means to a permanent support frame.

80 For convenience when working on ceilings which may not all be entirely horizontal, it is preferred that the frame can be inclined with respect to the column over a range of angles about the perpendicular to the column.

85 In a preferred embodiment of the invention the panel support frame includes a main longitudinal member having two telescopic portions, one at each end. This enables panels of different dimensions to be mounted on the support frame, whilst the centre of gravity of the individual panels can always be located over or close to the location of the central column so that balance of the support is ensured.

90 The use of a central column to support the panel retaining frame is preferred for reasons of lightness and simplicity in manoeuvring the device.

95 Preferably the panel support frame further includes a central fixed lateral member on the main member and a terminal lateral member on each of the telescopically adjustable members. In this way the support frame may, in effect, comprise only four elements, one central longitudinal element and three transverse elements with one located at each end and one centrally located.

100 In embodiments in which the frame is inclinable with respect to the support column the frame may be inclinable in only one plane, or may be inclinable in two planes. There may be provided means for retaining the frame in a selected inclination with respect to the column.

105 Adjustment to the height of the panel support frame with respect to the ground is achieved by adjustment of the length of the central column, and this may be effected in one of a number of ways. For example, a winch may be provided on an outer member of a telescopic column with a chain or line passing over the winch and leading to a lower point on the central telescopic member of the column. Alternatively, if a telescopic column is employed, a rack and pinion arrangement with the rack being formed by notches in the inner member of the telescopic column may be employed.

110 Various embodiments of the present invention will now be more particularly described, by way of example, with reference to the accompanying drawings, in which:

115 *Figure 1* is a perspective view of a first embodiment of the invention;

120 *Figure 2* is a side view of an alternative embodiment to that of *Figure 1*;

Figure 3 is an exploded partial view of a detail of an embodiment similar to that of Figure 2; and Figure 4 is a schematic side view of a further embodiment of the invention.

Referring first to Figures 1 and 2, the panel support illustrated comprises a panel support frame generally indicated 11 carried on a column 12 which is supported by four radially extending feet 13, 14, 15, 16 securely attached to the lower end of the column 12. In fact, the column 12 is formed in two telescopic parts, an inner part 12a and an outer part 12b, and the outer part 12b carries a winch 17 having an inextensible line 18 which passes over a pulley 19 and down the gap between the two telescopic members 12a, 12b to be attached to the lower end of the inner telescopic member 12a. By turning a handle 20 of the winch 17 the inner member 12a can be raised or lowered with respect to the outer member 12b. Supported on the upper end of the inner member 12a is the panel support frame generally indicated 11.

As can be seen in Figure 1 the panel support frame comprises a longitudinal central member or "spine" 21 which is formed in three telescopic portions comprising a central portion 22, a first end portion 23 and a second end portion 24 which are each telescopically slidable in a respective end of the central portion 22. Extending laterally from the central portion 22 are two central lateral members 25, 26 which are secured to the central member 22 of the spine, such as by welding, in a permanent fashion and in such a way that the upper faces of the lateral arms 25, 26 are coplanar with the upper face of the central member of the spine 22.

Each of the slidably adjustable spine members 23, 24, carries a transverse arm 27, 28 respectively which are permanently attached to the outer ends of the respective members 23, 24 on the upper surfaces thereof, such that these arms 27, 28, act as retaining ledges for a panel which may be rested on the upper surfaces of the spine member 21 and the central lateral arms 25, 26.

As illustrated in Figure 1, the upper support frame 11 is fixed parallel to the legs 13-16 and consequently parallel to any surface on which the apparatus is standing. In the alternative embodiment illustrated in Figure 2 the frame may be inclined in respect to the column, for which purpose the central spine member 22 is provided with a downwardly projecting lug 29 which fits between a pair of upwardly projecting arms 30, 31 of a connector block generally indicated 32 having two downwardly projecting arms 33, 34 constituting an attachment fork for an upwardly extending lug 35 on the upper end of the column 12a, which in this embodiment has a rack 70 formed by a plurality of rectangular slots 71 in a longitudinal array along the length of the column. These slots 71 are engaged by teeth 72 of a pinion 73 mounted on a bracket 74 on the lower column 12b. The pinion 73 can be turned by a crank handle 20 to raise or lower the frame 11.

The two arms 30, 31 constitute a support fork for the lug 29 and have two aligned apertures 36, 37 which can receive the pin 38 also passing through

a hole 39 in the lug 29 to constitute a fulcrum for the frame 11. A wing nut 40 which can be screwed on the pin 38 serves to clamp the frame 11 in any selected inclination about the axis defined by the pin 38.

The downwardly projecting arms 33, 34 constitute a mounting fork for the lug 35 which has a central hole 41. The arms 33, 34 have respective apertures 42, 43 aligned with one another and so ranged as to be able to receive the pin 44 serving as a fulcrum for the block 32. Again, a wing nut 45 is provided to be screwed on the pin 44 to clamp the frame 11 in any selected inclination about the axis defined by the pin 44, which lies orthogonally with respect to the pin 38, thereby enabling the frame 11 to be positioned precisely in any inclination about the two orthogonal axes, that is, by tilting it in the two planes normal to the two axes, whereas in the embodiment of Figure 2 the frame 11 can only be tilted in one plane about the pin 38.

Turning now to Figure 4, an alternative embodiment is illustrated in which the support frame generally indicated 11 has a central downwardly extending clamp device 50 constituted by two arms 51, 52 spanned by a clamp screw 53. The arms 51, 52 have spherical end portions which surround a ball 54 carried on the upper end of a neck 55 of a shaft 56 having a lower threaded portion 57 engaged in a correspondingly threaded portion 58 of a column member 59 which is supported on an inner column member 60 by means of a pin 61 which is introduced into a selected transverse hole 62 in the member 60 through a pair of aligned apertures 63, 64 of the outer member 59, which can be displaced upwardly or downwardly along the column 60 to bring the apertures 63, 64 into register with a selected transverse opening 62, thereby determining, coarsely, the adjustment of the height of the frame 11. Fine adjustment of the height of the frame 11 is effected by turning a collar 65 of the threaded shaft 56 to screw the threaded portion 57 up or down within the threaded end portion 58 of the shaft 59. This can be effected without turning the frame 11 by slackening the clamp screw 53 slightly, thereby allowing the ball 54 to turn with the clamp arms 51, 52. This ball 54 also allows the frame 11 to be inclined in any direction with respect to the column supporting it, and to be clamped in this position thereby enabling a panel to be fitted to an inclined ceiling and retained there whilst appropriate fixings are attached.

It is envisaged that suitable materials for the apparatus of the present invention would be light aluminium or aluminium alloy sections, such as box sections, channel sections or circular tube, although elements of other particular section may be selected without thereby departing from the scope of the invention described non-limitatively with reference to the drawings.

CLAIMS

1. An extensible temporary panel support comprising a frame adapted for supporting a panel, such as a dry lining panel, to be affixed to a ceiling

ing, centrally supported by an extensible column having means for causing extension or contraction thereof to raise or lower the panel support frame, and means for retaining the column in any selected extension, the panel support frame having means for releasably retaining a panel thereon and having two substantially open edges (as herein defined) to allow access to a panel supported on the frame for affixing it in position to a permanent support.

2. An extensible temporary panel support as claimed in Claim 1, in which the said frame is tiltable with respect to the column.

3. An extensible temporary panel support as claimed in Claim 1 or Claim 2, in which the panel support frame includes a main longitudinal member having two telescopic portions, one at each end.

4. An extensible temporary panel support as claimed in Claim 3, in which the panel support frame further includes a central fixed cross member on the said main member, and a terminal cross member on each of the telescopically adjustable end members.

5. An extensible temporary panel support as claimed in any of Claims 2 to 4, in which the said tiltable frame can be turned in only one plane with respect to the support column.

6. An extensible temporary panel support as claimed in any of Claims 2 to 4, in which the frame is tiltable in two planes with respect to the support columns.

7. An extensible temporary panel support as claimed in any of Claims 2 to 6, in which there are further provided means for retaining the frame in any selected inclination with respect to the column.

8. An extensible temporary panel support as claimed in any preceding Claim, in which the said means for causing extension or contraction of the extensible column includes a winch.

9. An extensible temporary panel support as claimed in any of Claims 1 to 7, in which the said means for causing extension or contraction of the extensible column includes a rack and pinion coupling between a fixed and movable member of the extensible column.

10. An extensible temporary panel support as claimed in Claim 9, in which the rack is formed by notches in a column's central member.

11. An extensible temporary panel support as claimed in any preceding Claim, in which the said framework is provided with a universal joint between the frame and the support column.

12. An extensible temporary panel support as claimed in Claim 11, in which the said universal joint is a lockable ball joint.

13. An extensible temporary panel support as claimed in any of Claims 1 to 7, in which the means for causing extension or contraction of the extensible column includes a screw means for effecting height adjustment.

14. An extensible temporary panel support as claimed in any of Claims 1 to 7, in which the said means for causing extension or contraction of the extensible column includes telescopic members

with discreet selectable height positions.

15. An extensible temporary panel support substantially as hereinbefore described with reference to, and as shown in, the accompanying drawings.

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